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mise a reputable artist whose brains he has stolen. Had he confessed and promised to retrieve the past, in consideration of his youth and his undoubted natural abilities much might be condoned; but Mr. Edwards by his conduct has put himself beyond the pale of sympathy and deserves no leniency at our hands.

AMATEUR PHOTOGRAPHY.

II.

THE amateur who wishes to derive the most profit from his practice will get a note-book, and from the first record his experience. This is easily done by ruling off the paper, to admit, under various heads, the kind of dry plates used, the exposure in seconds, time of day, day of the month, condition of light, subject, and any other points that may be thought worthy of note. In one sense each photograph is an experiment, but an aggregation of experiments tends toward actual knowledge. The faculty of observation is very important in this work. For example, one may take a photograph at 10 A.M. in bright sunlight in May, but to do the same thing in bright sunlight at 10 A.M. in November one must take into account the decreased power of the sun's rays. Again, in November the air may be full of yellow haze, and yellow being non-actinic, a longer exposure will be necessary. The proximity of iron furnaces and mills, which fill the air with sulphurous smoke, will materially alter the conditions. These are but instances to which the observing amateur will add many more out of his own experience, and which the skilful photographer must take into consideration.

That which is true concerning the time and conditions of exposure is also true of the developing of the negatives. As has been said, every maker of a dry plate furnishes a formula which is considered the best for that plate. At the same time, there is scarcely an amateur who has not some private crotchet, some proportion, some method, which appears to him best. After acquiring a certain familiarity with the methods of developing negatives, it is desirable to make one's own developers. Here we have an embarrassment of riches. Receipts for developing negatives are only less common than remedies for rheumatism: almost everybody has one. The fact is, almost anything will develop a negative, a state of things which accounts for the numerous developers. In ordinary developing there are two disagreeable things—the pyrogallic acid is liable to stain both the print and the fingers, and "fogging" is often induced by the ammonia that forms an element in most developers. The more thoroughly we can eliminate these two, the more difficulties we shall have cleared away.

There is certainly no better authority on the subject of developers than the Society of Amateur Photographers, since it is carrying on important tests with the dry plates of different manufacturers. Their formula is as follows:

Yellow prussiate of potash; carbonate of soda; carbonate of potash; 45 grains of each to every ounce of water.

This formula allows for the making of any quantity. When made it is put in a bottle and labelled No. 1. In a second bottle, which should be marked No. 2, dissolve:

Sulphite of soda, 1 oz.; water, 16 oz.

These are the stock solutions. When wanted for use take from No. 1, $\frac{1}{2}$ oz., and from No. 2, $1\frac{1}{4}$ oz. To these add of dry pyro 4 grs., or, in general terms, two grains of pyro to every ounce of the normal developer, as it is called.

Now let us see what each constituent of the developer does in the work before it.

No. 1 gives detail.

No. 2 gives color.

Pyro gives density.

If a plate is under-exposed—that is to say, if the detail does not come out, add more of No. 1.

If the plate is over-exposed, decrease the amount of No. 1.

If the plate is not dense enough, does not seem to have body sufficient to give a good impression, add more pyro.

If the plate flashes out too quickly, have ready a solution of one drachm of bromide of potassium and one ounce of water. Add of this eight drops to the developer, in which it acts as a restrainer.

For fixing, prepare two solutions:

First—Hyposulphate of soda, 4 oz.; water, $1\frac{1}{2}$ pts.

Second—Hyposulphate of soda, 4 oz.; water, $1\frac{1}{2}$ pts.; alum, $1\frac{1}{2}$ oz.

Dissolve in 8 oz. water.

The reason for this last solution will appear, as the season advances, in what is termed "frilling"—that is to say, the hot weather will dissolve the gelatine at the edges, and cause it to ruffle up. After taking the plate through the developing bath and the fixing bath—and here let the importance of keeping these two baths absolutely separate be emphasized, since an atom of the hypo out of place is fatal—immerse it for a few minutes in the alum bath. This hardens the gelatine film and preserves it. The plate is then washed again and set up to dry.



"FISHERMAN'S BOAT NEAR DIEPPE." BY G. HAQUETTE.

FROM DUMAS'S SALON CATALOGUE FOR 1883. SHOWING THE PRINCIPAL FIGURE IN GEO. WHARTON EDWARDS'S DRAWING, "PUTTING OFF," CONTRIBUTED TO THE ART AMATEUR FOR FEBRUARY, 1885.

It may be well to recapitulate here the various processes. After taking the plate from the holder in the ruby-lighted room, wash it, and then place it in the developer, film side up. When developed, wash the plate again in running water. Place it next in the fixing bath. Wash it again, and place it in the alum bath. Wash it again, until every trace of the hypo is gone, otherwise crystals are apt to form on the negative.

There are certain failures in development so common that the amateur cannot fail to encounter them at an early period in his career. "Frilling" we have already noticed. Then we also have transparent spots. These arise from dust on the plate, air bubbles on the plate, and air bubbles in the developer. To guard against the first cause, a soft camel's-hair brush should always be passed over the plate to remove any particles of dust before putting it in the holder. "Fogging" appears as a dense film covering the plate. This proceeds from several causes, chiefly over-exposure, or the admission of white light into the room or the camera. The latter should be especially looked after. If the wood is not properly seasoned, cracks are apt to admit unlawful light. It is not amiss in that case to throw over it the focusing cloth, in which there is an aperture just the size of the lens, and which

will effectually screen the camera. It is easy to detect the cause of the "fogging." If the edges of the plate, where it has been protected by the plate-holder, are transparent, the "fogging" has been caused by over-exposure.

Over-exposure is an error on the right side, and can be remedied by development. In this case the developer should be made weaker and the solution of bromide of ammonia stronger. An under-exposed plate, which shows the shadows weak, needs a stronger developer and a stronger solution of the bromide. Do not hurry the development. Let the image sink well in. In fixing, if the time required is too long, the hyposulphite of soda solution is either too strong or too weak. After the plate is finished put it away to dry. And in order to insure it sufficient time, it is well to make it a rule to allow one night for drying.

It is to be presumed by this time that the amateur has succeeded in producing plates worth preserving. Notwithstanding one's natural impatience and dislike of extra trouble, it is advisable to varnish the negatives after they are thoroughly dried. Varnishes for this purpose can be bought. Meanwhile here is a home-made varnish that will be found excellent:

Sandarac, 1 oz.; castor oil, 80 gr.; alcohol, 6 oz.

Dissolve the sandarac first in the alcohol; then add the castor oil. To use the varnish, hold the plate at a slight angle and pour the varnish on it from the bottle. Incline the plate so that the varnish will spread over it, and then allow it to run toward one corner, and drain the superfluous varnish back into the bottle.

One must apologize for introducing so many chemicals, the very names of which suggest danger to clothes and hands. The stains from the pyrogallic acid constitute the only objection to the pyro development. It is possible to go through the entire developing process with very little damage, but this is more a question of personal care than anything else. There are cooks who can come out spotless from the most serious wrestling with pots and kettles, and others who suffer utter demoralization. However, it is easy to efface the ravages of the pyro. Add thirty drops of sulphuric acid to a pint of water, and dip the fingers into it.

Having now acquired a stock of chemicals, it is necessary to take some care of them. Keep your solutions, when the warm weather comes, in a cool place. Keep your dry plates not only secure from the light, but in a cool and dry place, as dampness will mildew them. Mark the tray for the hyposulphite solution, and use it for no other purpose. Keep your camera thoroughly clean and free from dust. Rub your lens with chamois skin, and do not touch it with the fingers.

After the negatives are dried the ferro-prussiate paper comes into requisition. This, until it is in the printing frame, should be exposed only in very weak light. Put the negative in the frame, film side down. Place over this a slip of the prussiate paper, the colored side down. Fasten the frame, and put it in the direct sunlight. The exposure varies from three to ten minutes. To determine the length of exposure the frame may be examined from time to time. As soon as the image is distinctly seen take the frame in and place the paper in a pan of clear water, and let it remain until the high lights of the picture become clear and the color has changed to an agreeable blue tone, which after washing becomes permanent.

M. G. H.

A LESSON IN CHARCOAL-DRAWING.

As a means of study charcoal-drawing is second to none; as an art to be cultivated for its own sake, it has peculiar facilities and charms. But the difficulty of producing finished work in charcoal is usually much underrated by beginners. It is not that the technique is difficult; it is very simple, and it is easy to acquire a degree of familiarity with it which will enable the student to do useful work. But, if he is ambitious to produce land-



“LA BELLE POULARD,” OF MONT ST. MICHEL. CHARCOAL SKETCH BY LÉON OLIVIE.

scapes approaching in completeness and in atmospheric effect those of Allongé or studies of the nude as brilliant as those sometimes turned out by advanced pupils in the schools of Paris or Munich or New York, he will find that a long course of study and much natural ability are required. As is also the case in painting in oil, with a single color, and in etching, it is easy to attain, in a charcoal drawing, a certain amount of truth and pleasing appearance of freedom. But, although it may not be perceived by the beginner in charcoal-drawing, a master of form and of values will leave him as far in the rear as a Rembrandt or a Whistler does the beginner in etching. Almost anyone can learn to make useful studies in charcoal; but it is reserved for very few to produce work of great intrinsic value.

The advantages of charcoal to a student are, its giving a distinct black mark, either a line or a mass of shade as required; its giving, by merely varying the pressure, a considerable, though restricted, number of shades or tones; the readiness with which it may be made to express a great many different textures, by charging the paper more or less with it, using, in the lighter parts, a stump or a bit of bread or rubber, then its allowing lights to be taken out with the finger, or the rubber or stump; and last, but not least, the freedom with which it permits corrections to be made at almost any stage in the progress of the work. It may be added, that charcoal drawing offers the best possible preparation for painting in oil, while it has advantages over that method in the firmness of the charcoal point when compared with the brush, and in its dryness, which permits the student to work for as long at a time as he pleases.

Our illustration by Olivie is an excellent reproduction of a masterly sketch, in which only the simplest and most direct means have been employed. The stump seems to have been used only in the shaded parts of the kerchief that covers the head, and for the purpose of differentiating its texture from that of the flesh. The rubber, or bread crumb, has been brought into play to obtain the lights which indicate the pattern of the kerchief. Elsewhere, the charcoal appears to have been used boldly and without retouching, or any sort of modification of the tints

once laid, so that none of the transparency proper to the medium has been lost. It should be said, however, that it will be impossible for the beginner to pre-serve all this transparency, because he will be obliged to dust off his drawing more than once before he has secured a good outline, and he should be continually correcting it as he goes ahead. But he can do much more in this way, without getting hopelessly confused, and without irremediably spoiling his drawing, than he can in any other medium.

On the other hand, an advanced student, drawing from life, would generally carry his work much farther than M. Olivie has done in his sketch. He would tone down the cheek that is in shade and the darks under the eyebrows and nose and lips, so as to distinguish them from the hair, and from one another. And he would add quite a number of lighter tones to the temple and the cheek which is in the light. He would also get in at least the general tone of the background, and would more decidedly separate the color and texture of the kerchief and the dress from those of the face. To do all this, he would probably use, besides the stump and rubber or bread, a roll of cotton or linen rag to spread the charcoal evenly over the broad surfaces and to give a delicate and receding texture. He would take care not to use too much force, for fear of rubbing the charcoal into the paper, which would render it impossible to take out clear lights or to produce effective modelling by means of successive applications of fresh charcoal. But a little practice will teach any one how to proceed, whether in laying broad tints with the rag or stump, or in modifying them with the fingers, with a piece of chamouis skin or glove leather, or with bread.

There is much disputing, both among teachers and students, as to the kind of paper which it is best to use. The original of our illustration was drawn on common French charcoal paper, which is strongly ribbed, as may be seen from the appearance of parallel lines in the cheek and other parts of the drawing. It is the best sort for quick sketching. It is also the best for the beginner, because it gives him the full value of the first rough and transparent tones from which all others

must be obtained by some process of gradation, and because it makes it impossible for him to waste his time in attempting too much finish. But, as he advances, he will find it better to change to a finer and more evenly grained paper which allows of subtle gradations and of fine drawing of detail. Colored paper is prohibited by most competent instructors as tending to encourage a habit of making careless and inaccurate generalizations as to tones and values; but common brown packing paper is often used for very large drawings—life-size drawings of the entire figure or of groups—because the dark middle tint saves a lot of mechanical labor, and also because it is cheap. The latter consideration had better not count when one is buying a supply of charcoal, however; the cheaper sorts are likely to be the dearer in the long run, because of their cutting so much to waste. It is also very exasperating to find it impossible to get a good point when it is needed, and to find a stick work now softly and freely, and again so harshly as to scratch the paper. It is best to buy the paper ready mounted on a frame or stretcher.

Charcoal drawings are fixed by means of a specially prepared liquid which is commonly blown on to the drawing through an atomizer or blow-tube of glass. But this method is slow and imperfect, and it is preferable to spread the liquid evenly on the back of the paper with a large flat brush. It should just penetrate the paper so as to barely moisten the charcoal. It should then be dried rapidly in the sun or before a fire.

The student should not expect to do much with charcoal in landscape until after he has studied for some time from the human figure. In no mode of working does an accurate perception of relations of lines and of tints count for so much as in this, and the training necessary to give such accuracy of perception is not to be got in landscape drawing with charcoal, unless, indeed, one has for teacher an artist of quite exceptional talent and experience.

R. R.
The accompanying portrait of “La Belle Poulard” must be remembered in connection with the account of Mont St. Michel by Henry Bacon, which will appear in the next number of The Art Amateur.

